View metadata, citation and similar papers at core.ac.uk

brought to you by CORE

provided by ResearchOnline at James Cook University

ResearchOnline@JCU

This is the **Accepted Version** of a paper published in the Canadian Journal of Cardiology:

Wang, Yutang (2014) *It is urgent to investigate predictors of the response of blood pressure to renal denervation.* Canadian Journal of Cardiology, 30 (4). p. 465.

http://dx.doi.org/ 10.1016/j.cjca.2013.12.028

JAMES COOK UNIVERSITY AUSTRALIA

It is urgent to investigate predictors of the response of blood pressure to renal denervation

Yutang Wang, PhD.

The Vascular Biology Unit, Queensland Research Centre for Peripheral Vascular Disease, School of Medicine and Dentistry, James Cook University, Townsville, Queensland 4811, Australia

Corresponding author: Yutang Wang. The Vascular Biology Unit, Queensland Research Centre for Peripheral Vascular Disease, School of Medicine and Dentistry, James Cook University, Townsville, Queensland 4811, Australia. Tel: +61 7 4781 3155; fax: +61 7 4781 3652; E-mail address: yutangwang000@gmail.com

Short title: Predictors of the response to renal denervation

Word count: 347

To the Editor

I have read with great interest a paper published in the advanced online edition in this journal.[1] This paper presented a position statement on renal denervation by the Canadian Hypertension Education Program, and stated that "the limited trial data published to date have shown clinically significant reduction in BP (blood pressure)". However, the authors did not cite references with different results. For example, in 2012, Brinkmann and colleagues showed that renal denervation (N=12) did not decrease office systolic blood pressure (157 mm Hg versus 157 mm Hg, for baseline and 3–6 months after the procedure).[2] Shortly after the acceptance of this position paper, Drs Fadl Elmula and Hart separately reported that renal denervation non-significantly decreased office systolic blood pressure by 7–8 mm Hg six months after the procedure ($P>0.05$ for both studies).[3,4]

Sample sizes of the studies from Drs Brinkmann, Fadl Elmula, and Hart were relative small, being 12, 6, and 8, respectively.[2-4] The non-significant finding of these three studies may be due to that the observation time was too short. However, this may be not a major reason, as the Symplicity HTN-1 study, the HTN-2 study, and the EnligHTN I study showed that renal denervation could significantly decrease office systolic blood pressure even at one month after the procedure. The main reason for the non-significant finding seems to be the variation in the blood pressure response to renal denervation. The responder rates (a decrease in office systolic blood pressure of $\geq$ 10 mm Hg) were only 25%, 33%, and 50%, respectively, in the reports from Drs Brinkmann,[2] Fadl Elmula,[3] and Hart.[4] These responder rates were lower than that in the Symplicity HTN-1 study. In addition, Dr Brinkmann reported that blood pressure in 58% of patients remained unchanged or even increased.[2] These three studies highlight that not every patient will respond to renal denervation with a fall in blood pressure and in some patients blood pressure may increase. Therefore, an urgent need is highlighted to

investigate predictors of the response of blood pressure to renal denervation, and subsequently to avoid possible harm to those non-responders.

Conflict of interest

The authors declare that they have no conflict of interest.

References

1. Khan NA, Herman RJ, Quinn RR, et al. Renal Denervation Therapy for the Treatment of Resistant Hypertension: A Position Statement by the Canadian Hypertension Education Program. Can J Cardiol 2013;Doi: 10.1016/j.cjca.2013.07.008.
2. Brinkmann J, Heusser K, Schmidt BM, et al. Catheter-based renal nerve ablation and centrally generated sympathetic activity in difficult-to-control hypertensive patients: prospective case series. Hypertension 2012;60:1485-90.
3. Fadl Elmula FE, Hoffmann P, Fossum E, et al. Renal Sympathetic Denervation in Patients With Treatment-Resistant Hypertension After Witnessed Intake of Medication Before Qualifying Ambulatory Blood Pressure. Hypertension 2013;62:526-32.
4. Hart EC, McBryde FD, Burchell AE, et al. Translational Examination of Changes in Baroreflex Function After Renal Denervation in Hypertensive Rats and Humans. Hypertension 2013;62:533-41.